

What is claimed is:

1. An acoustic wave contact detecting apparatus comprising:

a substrate having a surface along which acoustic waves  
5 propagate;

an acoustic wave generating means;

a reflection array for causing the generated acoustic waves to propagate along the surface of the substrate;

a detector for detecting changes in the acoustic wave  
10 caused by an object contacting the surface of the substrate;  
and

a controller for determining the geometric coordinates of the object; wherein:

at least one of the acoustic wave generating means and  
15 the detector are connected the controller by flexible planar wiring; and

the flexible planar wiring is of a wiring pattern in which a grounding wire is provided on at least one side of a signal wire.

20 2. An acoustic wave contact detecting apparatus as defined in claim 1, wherein:

the flexible planar wiring comprises:

a signal wire group in which a plurality of the signal wires are arranged; and

25 grounding wires at both sides of the signal wire group.

3. An acoustic wave contact detecting apparatus

comprising:

a substrate having a surface along which acoustic waves propagate;

a transmission side converter mounted on the substrate;

5 a mode converting element for converting bulk waves generated by the converter into acoustic waves, mounted on the surface of the substrate corresponding to the converter;

a reflection array for causing the generated acoustic waves to propagate along the surface of the substrate;

10 a detector for detecting changes in the acoustic wave caused by an object contacting the surface of the substrate; and

a controller for determining the geometric coordinates of the object; wherein:

15 at least one of the converter and the detector are connected the controller by flexible planar wiring; and

the flexible planar wiring is of a wiring pattern in which a grounding wire is provided on at least one side of a signal wire.

20 4. An acoustic wave contact detecting apparatus comprising:

a substrate having a surface along which acoustic waves propagate;

a transmission side converter mounted on the substrate;

25 a mode converting element for converting bulk waves generated by the converter into acoustic waves, mounted on the

surface of the substrate corresponding to the converter;

a reflection array for causing the generated acoustic waves to propagate along the surface of the substrate;

a detector for detecting changes in the acoustic wave  
5 caused by an object contacting the surface of the substrate;  
and

a controller for determining the geometric coordinates of the object; wherein:

at least one of the converter and the detector are  
10 connected to the controller by a bifilar wire; and

the bifilar wire is that in which a grounding wire is provided adjacent to a signal wire.

5. An acoustic wave contact detecting apparatus as defined in claim 3, wherein:

15 the substrate further comprises an inclined surface at an edge thereof; and

the converter is mounted on the inclined surface.

6. An acoustic wave contact detecting apparatus as defined in claim 4, wherein:

20 the substrate further comprises an inclined surface at an edge thereof; and

the converter is mounted on the inclined surface.

7. An acoustic wave contact detecting apparatus as defined in claim 3, wherein:

25 the flexible planar wiring is a flexible printed circuit (FPC).

8. An acoustic wave contact detecting apparatus as defined in claim 5, wherein:

the flexible planar wiring is a flexible printed circuit (FPC).

5 9. An acoustic wave contact detecting apparatus as defined in claim 3, wherein:

the flexible planar wiring is a flexible flat cable (FFC).

10 10. An acoustic wave contact detecting apparatus as defined in claim 3, wherein:

the flexible planar wiring is a flexible flat cable (FFC).